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RESEARCH ARTICLE

EFFECT OF FOOT EXERCISE AND WARM WATER FOOT SOAK ON FOOT EDEMA AMONG ANTENATAL WOMEN- A LITERATURE REVIEW.

Mamta Vasaiya[1] and Anjali Tiwari[2].

1. M sc. Nursing, Manikaka Topawala Institute of Nursing, CHARUSAT, Gujarat.
2. Assistant Professor and HOD, Dept. of Obstetrics & Gynaecological Nursing, Manikaka Topawala Institute Of Nursing CHARUSAT Gujarat.

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Abstract

The researchers' aims to evaluate the effect of foot exercise and warm water foot soak on foot edema among antenatal women during pregnancy. There are many physiological changes taking place during pregnancy. The anatomic and physiologic changes occurring with pregnancy result in a variety of symptoms affecting the lower extremity .In which leg and foot edema is caused by the abnormal fluid retention in the tissues of the lower extremities. As the natural weight gain increases during pregnancy, the centre of gravity changes, adding excessive pressures to the knees, ankles, and feet. Edema (swelling) and over pronation (flat feet) are the two of the most common foot problems that are occurs in antenatal period

Edema is common normal physiological change in late pregnancy. Warm water foot soak therapy is one of the hydrotherapeutic measure, which promotes muscle relaxation, relieves pain, dilates blood vessel and promotes circulation, relaxes the connective tissue and provides a soothing and healing effect .Exercising the feet on a regular basis not only improves overall foot health, but may also reduce risk for injury foot exercise, improves blood circulation, increases venous return, improves, muscles strengthening cardiovascular health and can help in circulation, muscle tone, and mood. So in an attempt to study which intervention foot exercise or warm water foot soak is better in relieving foot edema among antenatal women the researchers did a thorough literature review.

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Introduction:-

Lower extremities oedema is found in about 80% of all pregnancies, occurring in late pregnancy. Leg edema can be a symptom of serious underlying problems.

Lower extremities edema is a common complain during pregnancy and associated with daily activity limitations. Common intervention to reduce edema includes leg exercise and immersion in water which represents potential interventions to eliminate or minimize some of the functional limitations associated with legs edema during pregnancy.

Corresponding Author:-Mamta Vasaiya.
Address:-M sc. Nursing , Manikaka Topawala Institute of Nursing, CHARUSAT, Gujarat.

Medications are usually contraindicated during pregnancy as they may interfere with the baby's development. Complementary and alternative therapies such as massage therapy, essential oils, exercise, water soak, and herbs can offer natural relief. Research is limited on the use of alternative therapies for pregnant women in India.These should be used to instruct expectant mothers in alternative therapies can provide hope for those who are unable to find relief through traditional medicine.

There are ample amount of benefits of warm water foot soak and foot exercise which is cost effective and non-pharmacological as well as there is no complication to antenatal women and for her fetus so, it necessary to find best way to manage foot edema in antenatal women.

To study the same, the researcher reviewed many literature and it was obtained through various database includes printed and electronic database like CINHAL (Cumulative index to nursing &Allied Health Literature), MEDLINE(Medical Literature Analysis & RETRIVAL System Online) PubMed, Google Scholar and online journals.

Material Methods and Findings:-

The study is headed mainly on comparison of the effect of warm water foot soak and foot exercise on foot edema among antenatal women. By reviewing around 50 literatures researchers find out below reviews and divided into three parts:

1. Effect of warm water foot soak on foot edema in antenatal women.
2. Effect of foot exercise on foot edema in antenatal women.
3. Effect of other alternative therapies on foot health.

Conclusion:-

Hence from the extensive literature review the authors found that significant studies have been done in field but either lack some aspects of validity or are mostly done in set up other than the interest of the researchers about review.Various studies suggested that there is significant association between warm water foot soak and foot exercise on foot edema among antenatal women. Considering cost factors both are cost-effective and easy to perform, and no special skill is required and there is no any side effect of it. Both the interventions are having other benefits like it helps to reduces stress, promote relaxation, induces sleep, prevents foot complication e.g. deep vein thrombosis etc. To study about it more better the researchers are interested to determine exact effect of warm water foot soak and foot exercise.

Conflict Of Interest: None

Sourse Of Funding: Self

Ethical Clearance: permission was obtained from concern authorities.

AUTHOR:Dr.NahedFikry Hassan Khedr, N.F 1 , Dr.Reda Hemida,2 **COUNTRY/ PLACE :** Mansoura, Egypt **YEAR**:Nov.- Dec. 2016	**OBJECTIVE:** To evaluate effect of leg elevation versus water immersion on leg edema in third trimester of pregnancy	**METHODOLOGY**: A quasi experimental, comparative study was performed .80 pregnant women were equally divided into two groups. And data was collected.	**CONCLUSION/RESULT:** It is concluded that regular leg elevation and water immersion are beneficial in terms of decreasing physiological lower leg oedema in healthy women without obstetric complications.
AUTHOR:Darryl J Cochrane **COUNTRY/PLACE :** New Zealand **YEAR:** February 2004	**OBJECTIVE:** To assess the effectiveness alternating hot and cold water immersion for athlete recovery	**METHODOLOGY**: A literature search was performed using Sport Discus, Medline and Web of Science using the key words recovery, muscle fatigue, cryotherapy, thermotherapy, hydrotherapy, contrast water immersion and training. All statistical analyses were performed using SPSS for windows version 20.0 (SPSS, Chicago, IL	**CONCLUSION/RESULT:** The study concluded that Hot and cold water treatment both were effective for athletes' recovery.
AUTHOR: Tami Kent Jennifer Gregor ,Laila Deardorff VL Katz **COUNTRY/PLACE:** USA **YEAR:**January 2004	**OBJECTIVE:** To assess the edema-relieving effects of static immersion with water aerobics	**METHODOLOGY**: A comparative study was done and purposive sampling was used and eighteen healthy women between 20 and 33 weeks' gestation were studied standing on land, immersed to the axilla, and participating in a water aerobics class, each for 30 minutes	**CONCLUSION/ RESULT:** Water aerobics or static immersion has equal effect on relieving of foot edema.
AUTHOR: LyndallMollart **COUNTRY/PLACE:** Australia **YEAR:**2003	**OBJECTIVE:** To determine the effects of two different foot reflexology techniques with a period of rest on edema-relieving effects and symptom relief in healthy pregnant women with foot edema	**METHODOLOGY:** Single-blind randomised controlled trial study.Fifty-five women in the third trimester were randomly assigned to one of the three groups: a period of rest, 'relaxing' reflexology techniques or a specific 'lymphatic' reflexology technique for 15 min with pre- and post-therapy ankle and foot circumference measurements and participant questionnaire used	**CONCLUSION/ RESULT:** Lymphatic reflexology was the preferred therapy with significant increase in symptom relief thus the research concluded that the foot reflexology is effective for relieving the symptom of edema.
AUTHOR: AlbertasSkurvydas, SigitasKamandulis, AleksasStanislovaitis, **COUNTRY/PLACE:** Europe **YEAR:** Nov-Dec 2008	**OBJECTIVE:** To determine the effect of leg immersion in warm water before stretch-shortening exercise on the time course of indirect markers of exercise-induced muscle damage.	**METHODOLOGY:**A Crossover trial performed Eleven healthy, untrained men (age =21.5 ± 1.7 years) selected and Participants' legs were immersed in a water bath at 44 ± 1°C for 45 minutes.	**CONCLUSION/ RESULT:** At last it is concluded Leg immersion in warm water before stretch-shortening exercise reduced most of the indirect markers of exercise-induced muscle damage.

AUTHOR:JenniferGregor LailaDeardorff Vern Katz **COUNTRY/PLACE:**Oregon, USA **YEAR:**1999	**OBJECTIVE:** To assess the effect of bed rest and immersion for treating the edema of pregnancy.	**METHODOLOGY:**A comparative study was performed. This study compared three treatments for edema in healthy pregnant women in the third trimester: lateral supine bed rest at room temperature, sitting in a bathtub of waist-deep water at 32 +/- 0.5C with legs horizontal, and sitting immersed in shoulder-deep water at 32 +/- 0.5C with legs extended downward	**CONCLUSION/ RESULT:** After treatment; there was no difference among treatments. Immersion appeared to be a safe and more rapid method than bed rest to mobilize extravascular fluid during pregnancy. At last it is concluded that water immersion is more effective than the bed rest.
AUTHOR:Jean M. Irion Glenn L. Irion **COUNTRY/PLACE:** USA **YEAR**:2011	**OBJECTIVE:** To effect of Water Immersion to Reduce Peripheral Edema in Pregnancy	**METHODOLOGY:** Thirty-two pregnant women in at least their 34th weeks of a normally progressing pregnancy were assigned randomly to either standing water immersion (16) or to sitting upright in a chair with legs elevated at poolside (16). Subjects in the water group (W) were immersed up to the xiphoid process for 20 minutes in a swimming pool (85–90°F). Subjects in the land group (L) sat in a chair with both feet elevated for 20 minutes. Changes in right foot volume were quantified by foot volumetry immediately pre- and post-intervention. Right foot volume decreased 38 ± 18 mL (mean ± SD) for W and increased 2 ± 14 mL for L ($P < .001$ for between groups). It is concluded that Water immersion for 20 minutes is an effective means of decreasing pedal edema during pregnancy	**CONCLUSION/ RESULT:** Water immersion was found to be an effective means of decreasing pedal edema during pregnancy.
AUTHOR: Hartmann S. **COUNTRY/PLACE:** **S**witzerland **YEAR:**2005	**OBJECTIVE:** To check the response of pregnancy leg edema to a single immersion exercise session on uncomplicated dependent edema in pregnancy	**METHODOLOGY:**A comparative study was performed in which Nine women were selected in second and third trimester of pregnancy with marked edema. before and after upright water immersion exercise session (Aqua-Fit) for 45 min ower leg volume was measured by water displacement volumetry and	**CONCLUSION/RESULT:** A single immersion exercise session is a safe, effective, and enjoyable complement, or alternative, to compression stockings for reduction of gestational dependent edema. Further study is required to determine its duration of effect and the optimum interval between sessions. It is evaluated that single

		limb circumference, Maternal heart rate was monitored continuously throughout the session. Blood pressure was measured before and after the session. Mean left leg volume decreased by 112 ml from 1665 to 1553 ml, and right leg volume by 84 ml from 1665 to 1581 ml (P = 0.007)	immersion is safe and effective
AUTHOR:Çoban A, Şirin **COUNTRY/PLACE:** Turkey **YEAR:** (2010 Oct)	**OBJECTIVE:** To determine the effect of foot massage to decrease physiological lower leg edema in late pregnancy.	**METHODOLOGY:** A randomized controlled trial was done. Turkish researchers randomly divided 80 pregnant women into two groups: A study group that received a 20-minute foot massage daily for five days, and a control group that did not receive any intervention beyond standard prenatal care.	**CONCLUSION/ RESULT:**Foot massage was found to have a positive effect on decreasing normal physiological lower leg [edema] in late pregnancy.

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